

penetrate the metal pipe after the socket is crimped by cold forming. The annular anchoring groove is located in front of and separate from the receiving groove relative to the pipe end.

Grenier (US Patent 5,695,224) is a pipe joint assembly having a socket of a fitting 10, a sealing ring 34, an annular anchoring space 15 and a holding element 30, 32 in a receiving groove 13. Pipe 100 is not indicated as a metal pipe nor is the fitting 10 indicated as being crimpable. The holding element 30, 32 does not have ends which penetrate the metal pipe after the socket is crimped by cold forming. There is no crimping nor cold forming process. The holding element 30, 32 penetrates the pipe 100 when the pipe is moved back out of the socket. Note specifically the description in column 4, lines 39-48. The locking element 30 is a 0.015-inch thick stainless steel. This is not a sufficient holding element to dig into metal piping. The Grenier reference specifically teaches away from the holding means penetrating the pipe by crimping or cold forming. As noted in column 1, paragraph beginning on line 11, the methods are for plastic pipes, and "many of the operations are difficult to perform in the cramped and inaccessible areas where plumbing is usually found." (Column 1, lines 17-19.) Thus, Grenier's teaching is for plastic pipes only and is for those areas where crimping is unavailable. Thus, Grenier cannot anticipate Claim 1 nor form a basis for obviousness with respect to the other claims.

Washburn (US Patent 5,722,702) similarly is a plastic pipe compression coupling. It is similar to the Grenier patent in that it is for plastic pipes "capable of being installed in confined spaces such as pits and pull boxes." (Column 2, lines 7-8.) Sleeve 14 is not crimpable nor does it result in a cold formed structure. The compression device 22 forces the tangs 52 of the locking ring 16 into a locking position with an end of the exterior of the plastic pipe 12. This is a permanent compression device, and there is no crimping resulting in cold forming. When the compression device 22 is released, the structure of sleeve 14 will return to its prior condition. Thus, as with the Grenier patent, this patent teaches away from the use of a metal-to-metal fitting capable of and requiring crimping and cold forming. Thus, Washburn cannot anticipate nor would it be obvious to modify it to meet the limitations of the independent claim and its dependent claims.

Crickmer (US Patent 2, 225,208) does not indicate the material of the pipes 10, 11 nor the coupling 12. The gripping member 21 is held in coupling member 12 made up of a cylindrical housing 13, which is split into two halves fastened around the pipe section by

bolts 15 and nut 16. Tightening of these bolts produce the compression to embed the ends²⁷ of the gripping member 21 into the pipes 10, 11. Thus, the coupler 12 is not crimpable nor creates the held-in compression by the crimped cold forming. Thus, Crickmer, as the previous two patents, cannot anticipate nor be the basis for an obvious rejection.

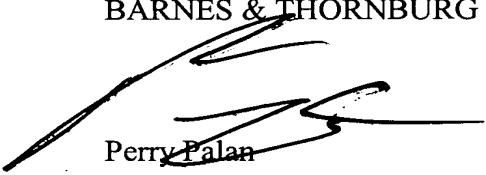
In summary, the references cited in the Office Action either teach away from the specific invention, relate only to plastic pipes, or fail to provide the appropriate limitation that the ends penetrate the metal after the socket is crimped by cold forming. This limitation cannot be ignored in that it is a structural limitation indicating a relationship of the elements. Such a functional limitation is permissible as noted in the *Manual of Patent Office Examining Procedures*, Section 2173.05(g). It serves to precisely define structural attributes of inter-related components of the assembly. Thus, the claims are considered allowable over the art.

An earnest attempt has been made to respond fully to the Examiner's rejections and to place the instant application in condition for allowance. Upon review of Claims 1, 2, 6, 9, 11 and 18-25, it will become evident that they are allowable over the art for the reasons stated above and, thus, passage of this case to issue is respectfully solicited.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees be charged, or any overpayment in fees be credited, to the Account of Barnes & Thornburg, Deposit Account No. 02-1010 (834/39803).

Respectfully submitted,

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Enclosure

CLAIM SUMMARY DOCUMENT

1. (Currently Amended) In a non-detachable press fit arrangement between an end portion of a metal pipe and a crimpable socket of a fitting, with the socket defining an interior space and being formed with an annular anchoring groove facing the interior space for receiving a sealing ring, said press fit arrangement comprising at least one holding element resiliently secured to the socket in a receiving groove and cold formed together with the socket, said holding element has a material penetrating component formed by a plurality of cutting arcuate projections pointing in the direction of the anchoring groove and whose ends penetrate the metal pipe after the socket is crimped by cold forming, and wherein the annular anchoring groove is located in front of and separate from the receiving groove relative to the pipe end.

2. (Currently Amended) The press-fit arrangement of claim 1 wherein the socket is formed adjacent the anchoring groove for the sealing ring with an annular receiving groove facing the interior space for receiving the holding element, and wherein ~~the~~ said material penetrating component is a cutting edge arranged about the circumference of the holding element and extending to the end portion of the metal pipe.

3-5. (Withdrawn)

6. (Original) The press-fit arrangement of claim 2 wherein the holding element is mounted by way of a positive fit into the receiving groove.

7-8. (Canceled)

9. (Original) The press-fit arrangement of claim 1 wherein the socket of the fitting has an outer peripheral surface formed with an engagement member selected from the group consisting of circumferential groove, lobes, ribs and circumferential fins for attachment of a press tool.

10. (Canceled)

11. (Original) The press-fit arrangement of claim 1 wherein the socket of the fitting is substantially round after being compressed, with sealing forces and holding forces

applied between the socket and the end portion of the metal pipe being substantially evenly distributed about the circumference of the metal pipe.

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(canceled)

12. (Canceled)

13-17. (Withdrawn)

18. (Original) The press-fit arrangement of claim 1 wherein the holding element has a hardness exceeding a hardness of the metal pipe.

19. (Original) The press-fit arrangement of claim 1 wherein the holding element is made of special steel.

20. (Original) The press-fit arrangement of claim 1 wherein the sealing ring is a seal selected from the group consisting of lip seal, O ring or matched formed part.

21. (Original) The press-fit arrangement of claim 1 wherein the sealing ring has a relatively small cross section.

22. (Previously Added) The press fit arrangement of Claim 1, wherein the interior space of the socket includes a shoulder, which limits the amount of insertion of the pipe end, and the anchoring groove is between the shoulder and the receiving groove and spaced from the shoulder.

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23. (Previously Added) The press fit arrangement of claim 1, wherein the receiving groove includes two opposed walls, one of the walls limiting axial movement of the holding element away from the anchoring groove before insertion of the pipe end into the socket.

24. (Previously Added) The press fit arrangement of claim 1, wherein the projections form one end of the holding element.

25. (Previously Added) The press fit arrangement of claim 1, wherein the socket is dimensioned to receive pipes having an insider diameter of greater than 54 millimeters.